

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. - 9. (canceled).

10. (previously presented): An automatic programming method of positioning a product model in a work model, and determining a machining area based on a state of positioning the product model, the automatic programming method comprising:

a first processing including:

detecting a turning surface having a largest diameter in the product model; and

determining a central axis of rotation on the turning surface detected as a turning axis of the product model;

a second processing including shifting or rotating the product model so that the turning axis of the product model determined matches a turning axis of the work model; and

a third processing including shifting the product model so that an end face of the product model shifted at the second processing matches a program origin preset in the work model.

11. (previously presented): The automatic programming method according to claim 10, further comprising a fourth processing including reversing a direction of the product model by

180 degrees with a central position of the product model in a direction of the turning axis as a center.

12. (previously presented): The automatic programming method according to claim 10, wherein when a part of the turning surface is missing, the first processing further includes setting a distance from the central axis of rotation to the farthest point as a diameter of the turning surface.

13. (previously presented): The automatic programming method according to claim 10, wherein the product model is displayed in a state held by a jig model.

14. (previously presented): A computer-readable recording medium that stores a computer program for positioning a product model in a work model, and determining a machining area based on a state of positioning the product model, wherein the computer program makes a computer execute

a first processing including

detecting a turning surface having a largest diameter in the product model; and

determining a central axis of rotation on the turning surface detected as a turning axis of the product model;

a second processing including shifting or rotating the product model so that the turning axis of the product model determined matches a turning axis of the work model; and

a third processing including shifting the product model so that an end face of the product model shifted at the second processing matches a program origin preset in the work model.

15. (previously presented): The computer-readable recording medium according to claim 14, wherein the computer program further makes the computer execute a fourth processing including reversing a direction of the product model by 180 degrees with a central position of the product model in a direction of the turning axis as a center.

16. (previously presented): The computer-readable recording medium according to claim 14, wherein when a part of the turning surface is missing, the first processing further includes setting a distance from the central axis of rotation to the farthest point as a diameter of the turning surface.

17. (previously presented): The computer-readable recording medium according to claim 14, wherein the product model is displayed in a state held by a jig model.

18. (previously presented): An automatic programming device that positions a product model in a work model, and determines a machining area based on a state of positioning the product model, the automatic programming device comprising:

a first unit that detects a turning surface having a largest diameter in the product model, and determines a central axis of rotation on the turning surface detected as a turning axis of the product model;

a second unit that shifts or rotates the product model so that the turning axis of the product model determined matches a turning axis of the work model; and

a third unit that shifts the product model so that an end face of the product model shifted by the second unit matches a program origin preset in the work model.

19. (previously presented): The automatic programming device according to claim 18, further comprising a fourth unit that reverses a direction of the product model by 180 degrees with a central position of the product model in a direction of the turning axis as a center.

20. (previously presented): The automatic programming device according to claim 18, wherein when a part of the turning surface is missing, the first unit sets a distance from the central axis of rotation to the farthest point as a diameter of the turning surface.

21. (previously presented): The automatic programming device according to claim 18, wherein the product model is displayed in a state held by a jig model.

22. (new): The automatic programming method according to claim 10, wherein the product model is a model of a resulting product created by machining a workpiece and wherein the work model is a model of the workpiece from which the resulting product is created.

23. (new): The automatic programming method according to claim 22, wherein a numeric control program is created based on an automatic overlapping of the product model onto the work model, wherein in said automatic overlapping, the turning axis of the product model is automatically matched to the turning axis of the work model in the second processing and the end face of the product model is automatically matched to the program origin in the work model in the third processing.

24. (new): The automatic programming method according to claim 10, wherein the product model is displayed overlapped on the work model.

25. (new): The automatic programming method according to claim 10, further comprising automatically determining a smallest work model suitable for the product model.

26. (new): The automatic programming method according to claim 10, further comprising selecting at least one claw holding the work model, said selection is based on a shape of the work model.